

## REMARKS

Claims 1, 11, 19, 20, 35, 36, 37, 61, and 62. Claims 1-62 remain pending.

The Examiner rejected claims 1-11, 19-26, 28-29, and 36-52, 54, 55, 61, and 62 under 35 U.S.C. §103(a) as being unpatentable over Otani (U.S. patent 6,351,469). The Examiner has also rejected the remaining claims under 35 U.S.C. §103(a) as being unpatentable over Otani in view of one or more secondary references Eng (U.S. patent 5,963,557), Friedman (U.S. patent 5,949,788), and Data-Over-Cable Service Interface Specification (DOCSIS), Radio Frequency Interface Specification, SP-RFI-I02-971008, Interim Specification, Cable Television Laboratories, 1997 (herein referred to as DOCSIS-1997).

Claim 1 is directed towards a “method for transmitting upstream data from a cable modem within a cable plant.” Claim 1 also requires “selecting a first upstream channel for transmission of a first portion of the upstream data and selecting a second upstream channel for transmission of a second portion of the upstream data, wherein the selection of the first and second upstream channels is based on a criteria selected from a group consisting of a load balancing criteria and a data type criteria.” Claim 1 also recites “transmitting the first portion of the upstream data on the first upstream channel from a first PHY block of the cable modem” and “transmitting the second portion of the upstream data on the second upstream channel from a second PHY block of the cable modem, the second upstream channel differing from the first upstream channel in their respective frequency ranges, wherein the first PHY block differs from the second PHY block.” Claim 36 is directed towards a computer readable medium having computer readable code for performing operations similar to the operations of claim 1. Claim 61 is directed towards an apparatus having means for performing operations similar to the operations of claim 1.

Claim 11 is directed towards a “cable modem.” Claim 11 requires the cable modem to include “a processor configured to initiate selective transmission on multiple upstream channels, wherein the selective transmission on multiple upstream channels is based on a criteria selected from a group consisting of a load balancing criteria and a data type criteria” and “an upstream transmitting component operating in conjunction with the processor and configurable by the processor to transmit data over multiple upstream channels through different PHY blocks, wherein the multiple upstream channels are assigned within a downstream channel received into the cable modem and wherein the first upstream channel has a different frequency range than the second upstream channel.”

Claim 19 is directed towards a “head end for receiving upstream data from a cable modem, comprising a splitter that receives an upstream signal from the cable modem, the upstream signal including a first portion of the upstream data on a first upstream channel and a second portion of the upstream data on a second upstream channel that differs from the first upstream channel and wherein the first upstream channel has a different frequency range than the second upstream channel, the splitter being arranged to separate the first portion of the upstream data transmitted over the first upstream channel from the second portion of the upstream data transmitted over the second upstream channel for further processing of the separated data, wherein the head end is further operable to assign the first upstream channel and the second upstream channel to the cable modem, wherein the first and second upstream channels have been selected for transmission of their respective data from different PHY blocks based on a load balancing criteria or a data type criteria.” Claim 62 also has the limitation “wherein the first and second upstream channels have been selected for transmission of their respective data from different PHY blocks based on a load balancing criteria or a data type criteria.”

Claim 20 is directed towards a “method of transmitting upstream data from a cable modem over multiple upstream channels within a cable plant.” Claim 20 also requires “receiving a downstream signal within a downstream channel into the cable modem” and “configuring the cable modem to transmit over a first upstream channel specified in the downstream signal.” Claim 20 further includes “configuring the cable modem to transmit over a second upstream channel which has a different frequency range than the second upstream channel if the second channel is specified in the downstream signal” and “selectively transmitting different data portions over the first and second channels through two different PHY blocks based on a criteria selected from a group consisting of a load balancing criteria and a data type criteria.” Claim 37 is directed towards a computer readable medium having computer readable code for performing operations similar to the operations of claim 20.

Claim 35 is directed towards a “cable modem” that includes “a first media access controller associated with a first memory portion into which data is written for transmission upstream from the cable modem” and “a second media access controller associated with a second memory portion into which data is written for transmission upstream from the cable modem.” Claim 35 also requires “a first PHY block coupled with the first media access controller” and “a second PHY block coupled with the second media access controller.” Claim 35 also requires “a processor configured to receive a downstream signal within a downstream channel into the cable modem, configure the first PHY block to transmit data over a first upstream channel obtained from the downstream signal, configure the second PHY block to transmit data over a second upstream channel having a different frequency than the first upstream channel and obtained from the downstream signal if the second upstream channel is available, select the first upstream

channel for transmission of a first data portion by writing to the first memory portion of the first media access controller so that the first data portion is transmitted through the first PHY block and select the second upstream channel for transmission of a second data portion by writing to the second memory portion of the second media access controller so that the second data portion is transmitted through the second PHY block, wherein selection of the first and second channels is based on a criteria selected from a group consisting of a load balancing criteria and a data type criteria.

Embodiments of the present invention provide mechanisms for selectively transmitting data on different upstream channels having different frequency ranges using different PHY blocks, where such selective transmission of the upstream channels is based on either a load balancing or data type criteria. Other embodiments of the present invention provide mechanisms for receiving data from different upstream channels having different frequency ranges using different PHY blocks, where such selective transmission of the upstream channels was based on either a load balancing or data type criteria.

In contrast, the primary reference Otani discloses a system having time multiplexed data and voice transmitted from a cable modem, rather than sending data on channels having different frequency ranges, in the manner claimed. The system of Otani has a center device and a number of terminals. Each device has access to two channels, a B channel (for voice) and a C channel (for data). Column 15, lines 48-51. Each device can allocate its own voice (first medium signal) or data (second medium signal) to a particular sub-channel based on idle/busy information. See Column 4, lines 52-58. As shown in Figure 8, the B and C channels are simply time multiplexed. Of particular note, the system of Otani is a TDMA or "time division multiple access" system. See Abstract. Thus, since the data is merely time multiplexed and not transmitted on differently frequency channels, data is necessarily not transmitted through different PHY blocks. Additionally, Otani fails to disclose or suggest mechanisms for selectively transmitting on different PHY blocks based on a load balancing or data type criteria in the manner claimed. The secondary reference Eng (used to reject independent claim 35) also fails to teach or suggest such limitations. In contrast, Eng merely discloses transmitting through two transmitters based merely on reservation vs. non-reservation of such channels, not on load balancing or data type criteria, in the manner claimed. The remaining secondary references also fail to teach or suggest selectively transmitting on different PHY blocks based on a load balancing or data type criteria (or receiving such data) in the manner claimed. Accordingly, it is respectfully submitted that claims 1, 11, 19, 20, 35, 36, 37, 61, and 62 are patentable over the cited references.

The Examiner's rejections of the dependent claims are also respectfully traversed. However, to expedite prosecution, all of these claims will not be argued separately. Claims 2-10, 12-18, 21-34, and 38-60 each depend directly from independent claims 1, 11, 20, 36, or 37 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claims 1, 11, 20, 36, or 37. Further, the dependent claims require additional elements that when considered in context of the claimed inventions further patentably distinguish the invention from the cited art.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,  
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